

REMARKS

Drawings

The Examiner objected to the drawings as failing to show the control plane in communication with the data plane. However, it is believed that such communication is inherent in, for example, FIG. 2 in which block 152 (“Detect IP multicast packet”) necessarily detects or otherwise receives the IP multicast packet from the data plane.

35 U.S.C. § 102 Rejection of the Claims

Claims 1, 3, 6-9, 13-15, and 20 were rejected under 35 U.S.C. § 102(e) as being anticipated by Clarke.

Independent claims 1 generally recites a network device generally including a data plane and a control plane having (1) a **shared transmit/receive queue infrastructure to queue incoming multicast packets** to be replicated on a per ingress port basis **and to queue transmit packets**, and (2) a multicast processing engine having a circular replication buffer to facilitate multithreaded replication of multicast packets on a per egress VLAN replication basis.

Similarly, independent claims 15 generally recites a computer program package that includes including instructions that cause a processor to perform actions generally including queuing incoming multicast packets to be replicated on a per ingress port basis in a **shared transmit/receive queue infrastructure** that **queues the incoming multicast packets to be replicated and transmit packets**, determining an ingress port from which to de-queue multicast packets, de-queuing multicast packets from the shared transmit/receive queue infrastructure, the de-queued multicast packets being associated with the determined ingress port and placed into a replication buffer for replication, and performing multithreaded replication of multicast packets on a per egress VLAN replication basis utilizing a replication buffer.

As is evident, the “shared transmit/receive queue infrastructure” recited in each of independent claims 1 and 15 queues **both** incoming multicast packets **and** transmit packets.

In contrast, Clarke explicitly shows and describes an input buffer (276) and a separate output buffer (280) (see, e.g., FIG. 2B and paragraphs [0023] and [0025]). These two separate buffers are clearly not shared.

The examiner notes that the processors 261-264 as operating in a round robin fashion to process queued incoming multicast packets. However, the processors are exactly that –

processors. The processors are neither the shared transmit/receive queue infrastructure as recited in the claims, nor do they suggest or render obvious a shared transmit/receive queue infrastructure.

Withdrawal of the rejection of independent claims 1 and 15 as well as claims 3, 6-9, 13, 14, and 20 dependent therefrom under 35 U.S.C. §102(e) is respectfully requested.

35 U.S.C. § 103 Rejection of the Claims

Claims 2-5, 10-12 and 16-19 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Clarke in view of Calamvokis.

However, claims 2-5 and 16-19 are believed to be allowable at least because claims 1 and 15 from which they depend are believed to be allowable as discussed above. Withdrawal of the rejection of claims 2-5 and 16-19 under 35 U.S.C. §103(a) is respectfully requested.

Independent claim 10 recites a control plane multicast packet processing engine that generally includes a circular replication buffer for facilitating multithreaded replication of multicast packets on a per egress VLAN replication basis and a scheduler in communication with **a shared transmit/receive queue infrastructure for queuing incoming multicast packets** to be replicated on a per ingress port basis **and for queuing transmit packets**, the schedule being configured to de-queue multicast packets associated with the ingress ports into the circular replication buffer, the scheduler utilizing scheduling algorithms to dynamically adapt the rate at which the multicast packets are de-queued from each ingress port as a function of how much output bandwidth each ingress port utilizes.

Similar to independent claims 1 and 15, independent claim 10 also recites the “shared transmit/receive queue infrastructure” that queues **both** incoming multicast packets **and** transmit packets.

Withdrawal of the rejection of independent claim 10 as well as claims 11 and 12 dependent therefrom under 35 U.S.C. §103(a) is respectfully requested.

Conclusion

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant’s attorney (650-988-8070) to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 50-1217 (Order No. **INTCP014**).

Respectfully submitted,



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